

REMARKS

Applicant hereby traverses the outstanding rejections, and requests reconsideration and withdrawal in light of the amendments and remarks contained herein. Claims 8 and 19 have been amended. Claims 1, 3-9, 11-13, 15-17, and 19-22 are pending in this application.

I. Rejections under 35 U.S.C. § 112

Claims 8 and 19 stand rejected under 35 U.S.C. § 112. Applicant has amended claims 8 and 19 to recite “a test tape that simulates a telephone conversation.” Applicant believes that the amendments to claims 8 and 19 address the rejection set forth by the Examiner, and asks that the Examiner’s rejection of claims 8 and 19 be withdrawn. Applicant has amended claims 8 and 19 only in response to the § 112 rejection. No new matter has been added with the amendment of claims 8 and 19 as support for the added language is found on page 4 at lines 27-29, and on page 5 at lines 1-3.

II. Rejections under 35 U.S.C. § 103

To establish a prima facie case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the first or second criteria, Applicant respectfully asserts that the references do not teach or suggest all the claim limitations.

A. Claim 1

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kitchin et al.* (U.S. Patent No. 5,319,702, hereinafter *Kitchin*) in view of *Alfred et al.* (U.S. Patent No. 5,894,504, hereinafter *Alfred*), and in further view of *Ahmadi* (European Patent Publication EP 1093310, hereinafter *Ahmadi*).

Lack of Claimed Limitations

Claim 1 requires, “training said artificial neural network to an ADSI standard to provide a trained artificial neural network system.” The combination of *Kitchin*, *Alfred*, and *Ahmadi* does not teach or suggest at least this element of claim 1. The Examiner admits that *Kitchin* “do[es] not disclose expressly the details of the method of training the ANN,” and offers *Ahmadi* to cure this deficiency. Office Action, page 5, paragraph 1. However, *Ahmadi* does not teach, or even suggest, this limitation. The training algorithm of *Ahmadi* discloses “starting with a random set of weights, applying a realistic set of inputs, determining an error by comparing the actual output to the desired outputs, and adjusting the weights according to the error.” *Ahmadi*, Col. 11, lines 9-13. This process does not teach or suggest training an artificial neural network to an ADSI standard.

The Examiner states that “since training the ANN is intrinsic to its operation in a new application environment, such as an ADSI environment, a realistic set of inputs representative of the ADSI environment is required to be selected by a trainer....” Office Action, page 5, paragraph 2. However, the Examiner has offered no reference or other support that training an ANN is intrinsic, in and of itself. Thus, it would not necessarily be intrinsic to train an ANN for operation in a new application environment. Claim 1 also does not require the ANN to be placed into a new application environment. Moreover, contrary to the Examiner’s statements, claim 1 does not require an ADSI system. Therefore, the speech recognition system and all of the technology described in *Alfred* is irrelevant to the claimed invention. Claim 1 clearly requires training the ANN to an ADSI standard. It does not claim an ADSI system. The combination of *Kitchin* and *Ahmadi* does not teach or suggest “training said artificial neural network to an ADSI standard,” as required by claim 1. Furthermore, the teachings of *Alfred* are irrelevant to the claimed invention. Therefore, the combination of *Kitchin*, *Ahmadi*, and *Alfred* does not teach or even suggest the limitations of claim 1.

Additionally, claim 1 requires, “wherein said trained neural network system determines the call progress tones in the presence of near end speech.” Neither *Kitchin*, *Ahmadi*, nor *Alfred* teach this limitation either alone or in combination. *Kitchin* defines detecting hook flash events occurring on a *remote telephone*. Abstract. *Ahmadi* teaches its

tone detection in the interworking unit (IWF) 22, which is outside of the telephone device (Col. 5, lns 22 – 27), and *Alfred* merely teaches an advanced call waiting and messaging system (Abstract). None of these references teaches or even suggests that call progress tones are determined in the presence of near end speech. Detecting tones while speech is present on the line is not the same as in the presence of near-end speech. Thus, the references do not teach the claimed limitation. Accordingly, Applicant asserts that claim 1 is patentable over the 35 U.S.C. § 103(a) rejection of record and requests that the Examiner withdraw the rejection of record and pass claim 1 to allowance.

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In his rejections, the Examiner states that “[f]urther, the ANN can operate in any application environment provided the ANN is adequately trained to learn the desired operational environment using the training data set representative of the various conditions imposed on the performance of the ANN. Since training the ANN is intrinsic to its operation in a new application environment, such as an ADSI environment, a realistic set of inputs representative of the ADSI environment is required to be selected by a trainer to train the ANN to detect call progress tones to an industry ADSI standard.” Office Action, page 5, paragraph 2. Under Rule 37 C.F.R. § 1.104(d)(2), the Examiner is hereby requested to provide and make of record an affidavit setting forth his data as specifically as possible for the assertion. Alternatively, under M.P.E.P. § 2144.03, the Examiner is hereby requested to cite a reference in support of the assertion.

B. Claims 1, 3-5, 12-13, 15-16

Claims 1, 3-5, 12-13, 15-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Bennett et al.* (U.S. Patent No. 5,311,589, hereinafter *Bennett*) in view of *Alfred* and in further view of *Ahmadi*.

Lack of Claimed Limitations

Claim 1 requires, “training said artificial neural network to an ADSI standard to provide a trained artificial neural network system.” The Examiner admits that *Bennett* “does not teach employing an artificial network (ANN) and training the ANN to an ADSI

environment,” and offers *Ahmadi* to cure this deficiency. Office Action, page 7, paragraph 4. However, *Ahmadi* does not teach, or even suggest, this limitation. The training algorithm of *Ahmadi* discloses “starting with a random set of weights, applying a realistic set of inputs, determining an error by comparing the actual output to the desired outputs, and adjusting the weights according to the error.” *Ahmadi*, Col. 11, lines 9-13. This process does not teach or suggest training an artificial neural network to an ADSI standard.

The Examiner further states that “since training the ANN is intrinsic to its operation in a new application environment, such as an ADSI environment, a realistic set of inputs representative of the ADSI environment is required to be selected by a trainer....” Office Action, page 8, paragraph 1. However, the Examiner has offered no reference or other support that training an ANN is intrinsic, in and of itself. Thus, it would not necessarily be intrinsic to train an ANN for operation in a new application environment. As noted above, claim 1 does not require that the ANN be placed in a new application environment. Moreover, contrary to the Examiner’s statements, claim 1 does not require an ADSI system. Therefore, the speech recognition system described in *Alfred* is irrelevant to the claimed invention. Claim 1 clearly requires training the ANN to an ADSI standard. It does not claim an ADSI system. The combination of *Bennett* and *Ahmadi* does not teach or suggest “training said artificial neural network to an ADSI standard,” as required by claim 1. Furthermore, the teachings of *Alfred* are irrelevant to the claimed invention. Therefore, the combination of *Bennett*, *Ahmadi*, and *Alfred* does not teach or even suggest the limitations of claim 1.

Additionally, claim 1 requires, “wherein said trained neural network system determines the call progress tones in the presence of near end speech.” Neither *Bennett*, *Ahmadi*, nor *Alfred* teach this limitation either alone or in combination. *Bennett* defines detecting DTMF signals in network monitors remote from the telephone unite. Col. 5, lns 5 – 16, Figure 1. *Ahmadi* teaches its tone detection in the interworking unit (IWF) 22, which is outside of the telephone device (Col. 5, lns 22 – 27), and *Alfred* merely teaches an advanced call waiting and messaging system (Abstract). None of these references teaches or even suggests that call progress tones are determined in the presence of near end speech. Detecting tones while speech is present on the line is not the same as in the presence of near-

end speech. Thus, the references do not teach the claimed limitation. Accordingly, Applicant asserts that claim 1 is patentable over the 35 U.S.C. § 103(a) rejection of record and requests that the Examiner withdraw the rejection of record and pass claim 1 to allowance.

Claim 12 requires, “a trained neural network system for determining call progress tones from an input signal associated with said telephony call and the state of said telephony call based on said call progress tones, wherein the determining call progress tones conforms to an ADSI standard.” As noted above, neither *Bennet*, *Alfred*, nor *Ahmadi* teach or suggest this limitation. Furthermore, the Examiner does not rely upon either of the references, alone or in combination, as teaching or suggesting this element of claim 12. Thus, the references do not teach the claimed limitation.

Claim 12 also requires that “said neural network [be] operable to provide one or more call options to a caller based on the determined state of said telephony call.” *Alfred* and *Ahmadi* do not teach or even suggest this element of claim 12, nor does the Examiner rely on these references for teaching this limitation. Moreover, the passages from *Bennett* cited by the Examiner as teaching this limitation do not disclose a neural network operable to provide one or more call options to a caller based on the determined state of the telephony call. The tones described in *Bennett* are all call progress tones. Col. 2, lns 29-38; Col. 11, lns 11-21; Col. 13, ln 55 – Col. 14, ln 8. These tones describe the progress or state of the call and do not offer “options” to the caller. Thus, the references do not teach the claimed limitation. Accordingly, Applicant asserts that claim 12 is patentable over the 35 U.S.C. § 103(a) rejection of record. Applicant respectfully asserts that claim 12 is not obvious over the cited references and requests that the Examiner withdraw the rejection of record and pass claim 12 to allowance.

Claims 3-5, 13, and 15-16 depend from claims 1 and 12, respectively, and therefore contains all limitations of the base claims. By virtue of this dependence and/or the additional features described in claims 3-5, 13, and 15-16, therefore, each sets forth features and limitations not recited by *Bennet*, *Alfred*, or *Ahmadi* either alone or in combination. Thus, Applicants respectfully assert that, for the above reason, claims 3-5, 13, and 15-16 are patentable over the 35 U.S.C. § 103 rejection of record.

C. Claim 6

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kitchin* in view of *Alfred*, in further view of *Li* (U.S. Patent No. 6,549,587, hereinafter *Li*), and in further view of *Ahmadi*.

Lack of Claimed Limitations

Claim 6 requires “training said artificial neural network system using a telephone network simulator to determine call progress tones from a plurality of signals to an ADSI standard.” As noted above with regard to claim 1, the combination of *Kitchin* and *Ahmadi* does not teach or suggest, at least, this limitation of claim 6. The Examiner admits that neither *Kitchen* nor *Ahmadi* teaches using a network simulator to determine call progress tones and offers *Li* to cure that deficiency. The Examiner contends that it would have been obvious for one of ordinary skill in the art to combine the teachings of *Kitchin* and *Ahmadi* with the tone detection and the network simulator discussed in *Li*. However, *Li* does not teach or even suggest using a network simulator in training an ANN to an ADSI standard. *Li* teaches using a network simulator in a timing recovery system, while neither *Kitchin* nor *Ahmadi* teaches or suggests training an ANN to an ADSI standard. Thus, the combination of *Kitchin*, *Ahmadi*, and *Li* does not teach or suggest all of the limitations of claim 6.

Furthermore, as noted with regard to claim 1, claim 6 does not require an ADSI system. Therefore, the Examiner’s use of *Alfred* and the teachings of *Alfred* are irrelevant to the claimed invention.

Lack of Motivation to Combine

Li discusses tone detection. Col 37, lns 34-51. However, as noted in *Bennett*, the detection of audible signaling tones reliably is a well known problem in the art. *Bennett*, Col. 1, lns 30-31. *Li* does not give any further instruction as to detecting tones other than to use a standard tone detector. *Li*’s network simulator, which is used to determine loop filter parameters, is used in the larger process of timing recovery. *Li* does not suggest that its network simulator should or could be used in its, or any other, tone detection system. Moreover, it would not have been obvious to one of ordinary skill in the art to combine *Li*’s

network simulator with any teachings of *Kitchin*, *Ahmadi*, *Li*, or even *Alfred*. Thus, there is no motivation either in the references or in the general knowledge of one of ordinary skill in the art to combine the teachings of *Kitchin*, *Ahmadi*, *Li*, and *Alfred*. Applicant respectfully requests that the Examiner withdraw the rejection of record and pass claim 6 to allowance.

Accordingly, Applicant asserts that claim 6 is patentable over the 35 U.S.C. § 103(a) rejection of record. Applicant respectfully asserts that claim 6 is not obvious over the cited references and requests that the Examiner withdraw the rejection of record and pass claim 6 to allowance.

Claims 17, 20-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kitchin* in view of *Alfred*, in further view of *Li*, in further view of *Ahmadi*, and in further view of *Moses et al.* (U.S. Patent No. 5,532,950, hereinafter *Moses*).

Lack of Claimed Limitations

Claim 17 requires “means for training said artificial neural network system to conform to an ADSI standard using a telephone simulator to determine call progress tones from a plurality of signals.” As stated by Applicant above, the combination of *Kitchin*, *Ahmadi*, and *Li* does not teach or suggest training an ANN to the ADSI standards. *Moses* also does not teach or even suggest this limitation. Therefore, the combination of *Kitchin*, *Ahmadi*, *Li*, and *Moses* does not teach or suggest each of the limitations of claim 17.

Claim 17 further requires, “wherein said means for training is operable to back-propagate an error indicative of whether the call progress tones were properly determined.” The Examiner admits that the combination of *Kitchin*, *Ahmadi*, and *Li* does not teach this limitation of claim 17, and offers *Moses* to cure this deficiency. However, the back-propagation algorithm of *Moses* does not cure the deficiencies that already exist in the combination of *Kitchin*, *Ahmadi*, and *Li*. Accordingly, the combination of the cited references does not teach or even suggest all of the limitations of claim 17. Applicant respectfully requests that the Examiner withdraw the rejection of record and pass claim 17 to allowance.

Claims 20-22 depend from claim 17, and, thus, inherit all of claim 17's limitations. By virtue of this dependence, each sets forth features and limitations not recited by the cited references. Thus, Applicants respectfully assert that, for the above reason, claims 7, 9, and 11 are patentable over the 35 U.S.C. § 103 rejection of record and requests that the Examiner withdraw the rejection of record and pass these claims to allowance.

Claims 7, 9, 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Kitchin*, *Alfred*, *Ahmadi*, and *Li* as applied to claim 6, and in further view of *Moses*.

Claims 7, 9, and 11 depend from claim 6 and, thus, inherit all of claim 6's limitations. By virtue of this dependence, each sets forth features and limitations not recited by the cited references. Thus, Applicants respectfully assert that, for the above reason, claims 7, 9, and 11 are patentable over the 35 U.S.C. § 103 rejection of record and requests that the Examiner withdraw the rejection of record and pass these claims to allowance.

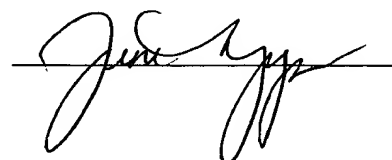
In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Applicant believes no fee is due with this response. However, if a fee is due, please charge Deposit Account No. 08-2025, under Order No. 10991539-1, from which the undersigned is authorized to draw.

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Date of Deposit: March 8, 2005

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